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TRANSMITTAL FORM (to be used for all correspondence after initial filing)		Application No.	09/822,539
		Filing Date	March 30, 2001
		First Named Inventor	Priya Govindarajan
		Art Unit	2182
		Examiner Name	Casiano, A.
Total Number of Pages in This Submission	23	Attorney Docket Number	42390P10459

ENCLOSURES (check all that apply)		
<input checked="" type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment / Response <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> PTO/SB/08 <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/ Incomplete Application <input type="checkbox"/> Basic Filing Fee <input type="checkbox"/> Declaration/POA <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) <input type="checkbox"/> Landscape Table on CD	<input type="checkbox"/> After Allowance Communication to TC <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input checked="" type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">Return postcard.</div>
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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT	
Firm or Individual name	Gordon R. Lindeen III, Reg. No. 33,192 BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP
Signature	
Date	March 16, 2006

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FEE TRANSMITTAL for FY 2005

Patent fees are subject to annual revision.

Complete if Known

Application Number	09/822,539
Filing Date	March 30, 2001
First Named Inventor	Priya Govindarajan
Examiner Name	Casiano, A.
Art Unit	2182
Attorney Docket No.	42390P10459

☐ Applicant claims small entity status. See 37 CFR 1.27.

TOTAL AMOUNT OF PAYMENT (\$) 500.00

METHOD OF PAYMENT (check all that apply)

☒ Check ☐ Credit card ☐ Money Order ☐ None ☐ Other (please identify): _____

☒ Deposit Account Deposit Account Number: 02-2666 Deposit Account Name: Blakely, Sokoloff, Taylor & Zafman LLP

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under 37 CFR §§ 1.16, 1.17, 1.18 and 1.20.

FEE CALCULATION

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet.	
2053	130	2053	130	Non-English specification	
1251	120	2251	60	Extension for reply within first month	
1252	450	2252	225	Extension for reply within second month	
1253	1,020	2253	510	Extension for reply within third month	
1254	1,590	2254	795	Extension for reply within fourth month	
1255	2,160	2255	1,080	Extension for reply within fifth month	
1401	500	2401	250	Notice of Appeal	
1402	500	2402	250	Filing a brief in support of an appeal	500.00
1403	1,000	2403	500	Request for oral hearing	
1451	1,510	2451	1,510	Petition to institute a public use proceeding	
1460	130	2460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
1809	790	1809	395	Filing a submission after final rejection (37 CFR § 1.129(a))	
1810	790	2810	395	For each additional invention to be examined (37 CFR § 1.129(b))	
Other fee (specify) _____					
SUBTOTAL (2)				(\$)	500.00

SUBMITTED BY

Complete (if applicable)

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Signature		Date	03/16/06		

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re the Patent Application of:

Priya Govindarajan et al.

Serial No.: 09/822,539

Filed: 3/30/2001

For: Method and Apparatus for Discovering
Network Topology



Art Unit: 2182

Examiner: Angel L. Cassiano

Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313

**APPEAL BRIEF
IN SUPPORT OF APPELLANT'S APPEAL
TO THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Sir:

Applicants (hereafter "Appellants") hereby submit this Brief in triplicate in support of its appeal from a final decision by the Examiner, mailed November 3, 2005 in the above-captioned case. Appellants respectfully request consideration of this appeal by the Board of Patent Appeals and Interferences for allowance of the above-captioned patent application.

An oral hearing is not desired.

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I. REAL PARTY IN INTEREST

The invention is assigned to Intel Corporation of 2200 Mission College Boulevard, Santa Clara, California 95052-8119.

II. RELATED APPEALS AND INTERFERENCES

To the best of Appellant's knowledge, there are no appeals or interferences that are related to, will directly affect, will be directly affected by, or have a bearing on the Board's decision in the present appeal.

III. STATUS OF THE CLAIMS

Claims 1-22 are currently pending in the above-referenced application. No claims have been allowed.

IV. STATUS OF AMENDMENTS

Claims 1-22 were finally rejected in the final Office Action mailed November 3, 2005. The Examiner confirmed the final rejection of these claims in an Advisory Action mailed January 17, 2006.

In response to the final Office Action mailed November 3, 2005, rejecting claims 1-22 under 35 U.S.C. §103(a), Appellants filed a Response After Final pursuant to 37 C.F.R. § 1.116 on December 22, 2005. Subsequently, the Advisory Action was mailed on January 17, 2006 maintaining all rejections in the final Office Action. In response, Appellants filed a timely Notice of Appeal on January 31, 2006. A copy of all claims on appeal is attached hereto as the Appendix of Claims.

Appellants respectfully traverse each of the grounds of rejection.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

Any networked domain will typically have a number of devices responsible for routing the traffic around the network. In order to survive a failure of any one device or link, a network is typically designed with redundant back-up routes. Some networks can have multiple interconnected back-up routes. Over time, devices can be moved, added, removed or replaced, routes can be moved or altered and device configurations can be changed. As a result, any documentation of the original network design, if it was created, becomes outdated. When problems occur, troubleshooting is made more difficult without accurate information on the network's topology. When new demands are to be applied to the network, it may not be possible to determine how to reconfigure the network without knowledge of the network's existing topology. When performance is to be measured or improved, it is difficult to determine how to develop the network without understanding all of the links and which devices are connected to each one. See Background of the Invention, page 2, paragraph 2.

The present invention can be implemented by using PING and Traceroute at sources distributed throughout a network and then piecing all of the collected information together to determine the overall topology of the network. The PING and Traceroute sources will be called Smartlinks. They respond to policies sent to them from a designated central server. In brief, the Smartlinks register themselves to the server and the server then sends policies to each of the Smartlinks. The Smartlinks execute the policies by running Traceroutes to each other. This allows them to identify all of the hosts that are between each Smartlink. This information is then sent to the central policy server which compiles the reports from each Smartlink to determine the topology of all of

the network that is within the Smartlinks. The server can then render the topology in the form of lists, charts, graphs or a database. See Detailed Description of the Invention, page 6, paragraph 6.

The elements of Claim 1 are provided below with references to the example structures and operations provided by embodiments shown in the drawing figures. The references to the Detailed Description can be found quickly by reference to the drawing figures.

registering (Figure 2, 44) a first network device (Figure 1: SL1, (Smartlink 1), Figure 2: 42) and a second network device (Figure 1, SL2, (Smartlink 2)) to a policy server (Figure 2: 40);

receiving (46) network discovery policies from the policy server at the first and second network devices (SL1, SL2);

identifying (48) the second network device (SL2) at the first network device (SL1) in accordance with the received policies;

sending (48, run traceroute) a message from the first network device to the second network device, the message establishing the identity of any network device between the first network device and the second network device in accordance with the received policies;

(50, 52, 54, 60) compiling the established identities to determine the topology of the network.

The elements of Claim 10 are provided below with references to the example structures and operations provided by embodiments shown in the drawing figures. The

references to the Detailed Description can be found quickly by reference to the drawing figures.

A machine-readable medium having stored thereon data representing sequences of instructions which, when executed by a machine, cause the machine to perform operations. *See Detailed Description of the Invention, page 16, paragraphs 31-32*

registering (Figure 2, 44) a first network device (Figure 1: SL1, (Smartlink 1), Figure 2: 42) and a second network device (Figure 1, SL2, (Smartlink 2)) to a policy server (Figure 2: 40);

receiving (46) network discovery policies from the policy server at the first and second network devices (SL1, SL2);

identifying (48) the second network device (SL2) at the first network device (SL1) in accordance with the received policies;

sending (48, run traceroute) a message from the first network device to the second network device, the message establishing the identity of any network device between the first network device and the second network device in accordance with the received policies;

(50, 52, 54, 60) compiling the established identities to determine the topology of the network.

The elements of Claim 16 are provided below with references to the example structures and operations provided by embodiments shown in the drawing figures. The references to the Detailed Description can be found quickly by reference to the drawing figures.

registering (Figure 2, 44) a first network device (Figure 1: SL1, (Smartlink 1), Figure 2: 42) and a second network device (Figure 1, SL2, (Smartlink 2)) to a policy server (Figure 2: 40);

receiving (46) network discovery policies from the policy server at the first and second network devices (SL1, SL2);

identifying (48) the second network device (SL2) at the first network device (SL1) in accordance with the received policies;

sending a Traceroute message (48) from the first network device to the second network device, to determine addresses of any network device between the first network device and the second network device in accordance with the received policies;

(50, 52, 54, 60) compiling the addresses to determine the topology of the network.

VI. GROUND OF REJECTION

A. Claims 1-4, 6-8, 10-12, 14-18 and 21-22 stand rejected claims under 35 U.S.C. §103(a) as being unpatentable over Nelson, et al., (hereafter “Nelson”) U.S. Patent No.5,835,720 in view of Melchione et al., U.S. Patent Application No. 2002/0091819 (hereafter “Melchione”).

B. Claims 5, 13 and 19 stand rejected under 35 U.S.C. §103 (a) as being unpatentable over Nelson in view of Melchione, in further view of Aggarwal, et al., U.S. Patent No. 5,675,741 (hereafter “Arrarwal”).

C. Claims 9 and 20 stand rejected under 35 U.S.C. §103 (a) as being unpatentable over Nelson in view of Melchione, in further view of Fishler, et al., U.S. Patent No. 6,507,646 (hereafter “Fishler”).

Grounds B and C rely on ground A. A separate review of grounds B and C is not sought by this appeal.

No claims were indicated as allowable.

VII. ARGUMENT

REJECTION OF CLAIMS 1-22 UNDER 35 USC §103 IS IMPROPER BECAUSE THE REFERENCES DO NOT SHOW THE ELEMENTS OF THE CLAIMS WHETHER ALONE OR IN COMBINATION

The Examiner has rejected claims 1-4, 6-8, 10-12, 14-18 and 21-22 under 35 U.S.C. § 103(a) as being unpatentable over Nelson in view of Melchione. First, there is no policy server in either reference with which to register. Nelson at col. 5 line 39 discloses that “the network manager 40 builds its hierarchical data structure by first accessing its own IP address table and local routing table.” Nelson at col. 6, lines 16-29 further discloses that “[t]he network manager uses the routing table to find more routers and retrieve their tables until it has completed the construction of the hierarchical data structure.” Therefore, the network manager is not a policy server. Melchione at page 10, claim 1 discloses “a policy orchestrator server . . . to determine a hierarchical tree structure containing the nodes based upon location of each node in the network topology.” Accordingly, the policy orchestration server is also not a policy server. Therefore, neither Nelson nor Melchione disclose “registering a first network device and a second network device to a policy server” as recited by claim 1.

Second, claim 1 recites “receiving network discovery policies from the policy server at the first and second network devices.” Melchione at page 1, paragraph 10 discloses, “determining policies for each node in the hierarchical tree structure to be enforced by an agent corresponding to each node. The policies . . . are [then] selectively inherited along the hierarchical tree structure.” Melchione at page 5, paragraph 51 further discloses that a policy “may be . . . to *scan all executable files for viruses, clean*

the file if possible or quarantine the file if the file cannot be cleaned upon detecting a virus, and send infection reports to the network administrator by default, . . . to report all infections to the local administrator and may be set at the location level [or] to *delete any infected files* of a specific user or local client device that may be set at the level of the specific user and/or specific local client device.” Accordingly, the policies in Melchione are virus scanning and detection policies, not network discovery policies as in claim 1. Therefore, Melchione fails to disclose receiving network discovery policies from a policy server at the first and second network devices, as recited by claim 1.

Third, claim 1 recites “determine[ing] the topology of the network.” Instead, Melchione determines a hierarchical tree structure *by using the network topology*, but does not actually “determine the topology of the network” as recited by claim 1. Absent any teaching of these three limitations of claim 1, in either reference, claim 1 is believed to be allowable.

Taken in combination the references still fail to teach or suggest the invention of claim 1. Nelson describes a network topology discovery system. Melchione describes an application configuring system that operates based on an already known network topology (para. 10, line 2; claim 1, line 10). The only combination suggested by the references, use Nelson to discover the network topology and Melchione to configure applications based on that topology. There is no motivation to modify the network application management system of Melchione to perform topology discovery. The Examiner's rejection is therefore inappropriate and Appellants respectfully request that the rejection be reversed.

VIII. CONCLUSION


Appellant respectfully submits that all the appealed claims in this application are patentable and requests that the Board of Patent Appeals and Interferences overrule the Examiner and direct allowance of the rejected claims.

This brief is submitted in triplicate, along with a check for \$500.00 to cover the appeal fee for one other than a small entity as specified in 37 C.F.R. § 1.17(c). Please charge any shortages and credit any overpayment to our Deposit Account No. 02-2666.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN

Date: March 16, 2006



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IX. APPENDIX OF CLAIMS (37 C.F.R. § 1.192(c)(7))

1. A method comprising:
 - registering a first network device and a second network device to a policy server;
 - receiving network discovery policies from the policy server at the first and second network devices;
 - identifying the second network device at the first network device in accordance with the received policies;
 - sending a message from the first network device to the second network device, the message establishing the identity of any network device between the first network device and the second network device in accordance with the received policies;
 - compiling the established identities to determine the topology of the network.
2. The method of Claim 1, wherein identifying the second network device comprises receiving an address of the second network device from a third network device.
3. The method of Claim 1, wherein the first network device comprises a plurality of network interfaces, the method further comprising selecting an interface to the second device by sending a packet from each of the plurality of network interfaces to an address of the second network device and selecting an interface that corresponds to any reply received from the second network device.
4. The method of Claim 3, wherein sending a packet from each of the plurality of network interfaces comprises sending a PING packet from each of the plurality of network interfaces.

5. The method of Claim 1, wherein sending the message comprises sending a plurality of messages to the second network device, each message having an incrementally greater time to live until a message reaches the second network device.

6. The method of Claim 1, wherein sending the message comprises executing a Traceroute utility at the first network device to determine the route of a packet between the first and second network device.

7. The method of Claim 1, further comprising:
identifying a third network device at the first network device;
sending a message from the first network device to the third network device, the message establishing the identity of any network device between the first network device and the third network device.

8. The method of Claim 1, further comprising sending a packet to a third network device to provoke the third network device to identify an address corresponding to a port at which the packet was received and wherein compiling further comprises compiling the identified address.

9. The method of Claim 1, further comprising sending a packet to a third network device addressed to a port that does not exist on the third network device in order to provoke the third network device to send an error message to the first network device that identifies an address of the third network device corresponding to the port at which the packet was received and wherein compiling further comprises compiling the identified address.

10. A machine-readable medium having stored thereon data representing sequences of instructions which, when executed by a machine, cause the machine to perform operations comprising:

registering a first network device and a second network device to a policy server;

receiving network discovery policies from the policy server at the first and second network devices;

identifying the a second network device at the a first network device in accordance with the received policies;

sending a message from the first network device to the second network device, the message establishing the identity of any network device between the first network device and the second network device in accordance with the received policies;

compiling the established identities to determine the topology of the network.

11. The medium of Claim 10, wherein the instructions for identifying the second network device further comprise instructions which, when executed by the machine, cause the machine to perform further operations comprising receiving an address of the second network device from a third network device.

12. The medium of Claim 10, wherein the first network device comprises a plurality of network interfaces, the instructions further comprising instructions which, when executed by the machine, cause the machine to perform further operations comprising selecting an interface to the second device by sending a packet from each of the plurality of network interfaces to an address of the second network device and selecting an interface that corresponds to any reply received from the second network device.

13. The medium of Claim 10, wherein the instructions for sending the message further comprise instructions which, when executed by the machine, cause the machine to perform further operations comprising sending a plurality of messages to the second network device, each message having an incrementally greater time to live until a message reaches the second network device.

14. The medium of Claim 10, further comprising instructions, when executed by the machine, cause the machine to perform further operations comprising:

identifying a third network device at the first network device;

sending a message from the first network device to the third network device, the message establishing the identity of any network device between the first network device and the third network device.

15. The medium of Claim 10, further comprising instructions which, when executed by the machine, cause the machine to perform further operations comprising sending a packet to a third network device to provoke the third network device to identify an address corresponding to a port at which the packet was received and wherein the instructions for compiling comprise further instructions which, when executed by the machine, cause the machine to perform further operations comprising compiling the identified address.

16. A method comprising:

registering a first network device and a second network device to a policy server;

receiving network discovery policies from the policy server at the first and second network devices;

identifying the second network device at the first network device in accordance with the received policies;

sending a Traceroute message from the first network device to the second network device, to determine addresses of any network device between the first network device and the second network device in accordance with the received policies;

compiling the addresses to determine the topology of the network.

17. The method of Claim 16, wherein identifying the second network device comprises receiving an identification of the second network device, including its address from a policy server.

18. The method of Claim 16, wherein the first network device comprises a plurality of network interfaces, the method further comprising selecting an interface to the second device by sending a PING message from each of the plurality of network interfaces to an address of the second network device and selecting an interface that corresponds to any reply received to the PING message from the second network device.

19. The method of Claim 16, wherein the Traceroute message comprises a plurality of messages to the second network device, each message having an incrementally greater time to live until a message reaches the second network device.

20. The method of Claim 16, further comprising sending a packet to a third network device addressed to a port that does not exist on the third network device in order to provoke the third network device to send an error message to the first network device that identifies an address of the third network device corresponding to the port at which the packet was received and wherein compiling further comprises compiling the identified address.

21. The method of Claim 1, further comprising sending the established identities to the policy server in accordance with the received policy.

22. The method of Claim 21 wherein compiling comprises compiling the established identities at the policy server to determine the topology of the network.

X. EVIDENCE APPENDIX

None.

XI. RELATED PROCEEDINGS APPENDIX

None.